

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

~~Ex parte~~ REUEL S. OROCIO and THANG D. VU

MAILED

OCT 19 2005

U.S. PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

Appeal No. 2005-2192
Application No. 10/047,865

ON BRIEF

Before FRANKFORT, McQUADE, and BAHR, Administrative Patent Judges.
McQUADE, Administrative Patent Judge.

DECISION ON APPEAL

Reuel S. Orocio et al. appeal from the final rejection of claims 1 and 2, all of the claims pending in the application.

THE INVENTION

The invention relates to "a pump impeller that is constructed to be in precise alignment and the method of manufacturing same" (specification, page 1). Claims 1 and 2 read as follows:

1. A method of manufacturing a pump impeller comprising: forming in a single molding operation a shroud, vanes and shaft sleeve so as to precisely obtain alignment of an axis of rotation of said sleeve with a longitudinal center axis of an

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annular inlet ring mounted on said shroud where said annular inlet ring and said sleeve are on opposite sides of said shroud and protrude in opposite directions from said shroud, whereby during rotation of said impeller smooth, efficient substantially noise-free operation is obtained because said sleeve is in balance with said annular inlet ring.

2. A pump impeller comprising:

a series of vanes having an outer end which is integrally mounted on a shroud, said shroud having a centrally located annular inlet ring which provides an inlet to an eye of said impeller, said annular inlet ring protruding outwardly in a first direction from said shroud; and

a hub integrally connected to an inner end of said vanes, said hub having an integral sleeve connected thereto, said sleeve protruding outwardly from said shroud in a second direction, said second direction being opposite said first direction, said sleeve having an axis of rotation, said inlet having a longitudinal center axis, said axis of rotation being aligned with said longitudinal center axis, whereby rotation of said impeller produces essentially no vibration with said impeller rotating smoothly, efficiently and substantially noise-free.

THE PRIOR ART

The references relied on by the examiner to support the final rejection are:

Botros	5,927,947	Jul. 27, 1999
Chapman	2002/0106277	Aug. 08, 2002

THE REJECTION

Claims 1 and 2 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chapman in view of Botros.

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Attention is directed to the brief (filed February 20, 2004) and the final rejection and answer (mailed November 24, 2003 and April 9, 2004) for the respective positions of the appellants and examiner regarding the merits of this rejection.

DISCUSSION

Chapman, the examiner's primary reference, discloses a centrifugal impeller formed as a single piece via an injection molding process. The impeller comprises a hub 11, a plurality of blades 12, a shroud 13, an axis of rotation 16 and a ring 17. The ring 17, which projects from the shroud, functions to inhibit the recirculation of air from the impeller outlet to the impeller inlet. As shown in Figures 6 through 8, the hub also includes a sleeve for receiving the drive shaft of a motor.

It is not disputed that Chapman teaches, or would have suggested, a pump impeller and method of manufacturing responding to all of the limitations in claims 1 and 2 except for those requiring the annular inlet ring and the sleeve to protrude in opposite directions from the shroud. The examiner (see page 3 in the final rejection) considers that Chapman's ring 17 constitutes an annular inlet ring as defined in the claims but concedes that this ring and the sleeve shown in Figures 6

through 8 do not extend from the shroud in opposite directions. The appellants (see pages 3 and 4 in the brief), observing that the ring 17 and sleeve extend from the shroud in the same direction, agrees with the examiner that these elements fail to meet the opposite direction limitations in the claims and also argues that the ring 17 is not an annular inlet ring as set forth in the claims.

The appellants' position that Chapman's ring 17 does not constitute an annular inlet ring as recited in claims 1 and 2 is well taken. Given the stated purpose of the ring to inhibit fluid recirculation and the depiction thereof in Chapman's drawings as being distanced both axially and radially from the actual inlet of the impeller, the examiner's insistence that this ring embodies an annular inlet ring is unreasonable. Nonetheless, Chapman's impeller does in fact include an annular inlet ring as recited in claims 1 and 2. As best shown in Figures 1 and 4 through 11 in the reference, the portion of the impeller projecting above the upper edges of the vanes forms an annular ring which defines the inlet of the impeller. This annular inlet ring, however, extends from the shroud in the same direction as the sleeve.

Thus, Chapman responds to all of the limitations in claims 1 and 2 except for those requiring the annular inlet ring and the sleeve to protrude in opposite directions from the shroud. To account for this deficiency, the examiner turns to Botros.

Botros discloses an injection molded centrifugal fan wheel similar in many respects to the impeller disclosed by Chapman. The Botros wheel 10 comprises a plurality of blades 14, an annular inlet ring 16 and a hub 18. Figure 2 shows that the hub includes a sleeve for receiving the drive shaft 34 of a motor 32, and that this sleeve and the annular inlet ring 16 project in opposite directions.

In combining Chapman and Botros to reject claims 1 and 2, the examiner submits that it would have been obvious "to modify the drive sleeve extension of Chapman to extend within the hub as taught by Botros for the purpose of providing the impeller hub with a smooth flow surface" (final rejection, page 4). According to the examiner (see page 5 in the answer), one of ordinary skill in the art would have appreciated the sleeve orientation taught by Botros as affording less turbulent fluid flow and more efficient impeller operation as compared to the sleeve orientation disclosed by Chapman.

The appellants (see pages 4 through 6 in the brief) acknowledge that the annular inlet ring and sleeve disclosed by Botros project in opposite directions, but argue that the proposed combination of Chapman and Botros stems from an improper piecemeal reconstruction of the claimed invention based on the appellants' disclosure.

The combined teachings of Chapman and Botros demonstrate that the sleeve orientations disclosed therein, i.e. one projecting in the same direction as the annular inlet ring and the other projecting in the opposite direction, were art recognized alternatives at the time of the appellants' invention. Moreover, the determination by the examiner that the artisan would have appreciated the sleeve orientation disclosed by Botros to be superior to that taught by Chapman in terms of reducing turbulent fluid flow and improving impeller efficiency is reasonable on its face and not disputed by the appellants. In this light, the examiner's conclusion that it would have been obvious in view of Botros to modify the Chapman impeller by orienting its sleeve to extend in a direction opposite to that of its annular inlet ring, thereby resulting in the subject matter recited in claims 1 and 2, is well founded.

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Accordingly, we shall sustain the standing 35 U.S.C. § 103(a) rejection of claims 1 and 2 as being unpatentable over Chapman in view of Botros. As our reasoning differs significantly from that advanced by the examiner in terms of how Chapman meets the annular inlet ring limitations in the claims, we designate our decision as a new ground of rejection under 37 CFR § 41.50(b) to allow the appellants a fair opportunity to react thereto.

SUMMARY

The decision of the examiner to reject claims 1 and 2 is affirmed, with the affirmance designated as a new ground of rejection under 37 CFR § 41.50(b).

This decision contains a new ground of rejection pursuant to 37 CFR § 41.50(b). 37 CFR § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

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37 CFR § 41.50(b) also provides that the appellants, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

- (1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .
- (2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED; 37 CFR § 41.50(b)

Charles E. Frankfort

CHARLES E. FRANKFORT
Administrative Patent Judge

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